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ABSTRACT

This paper is a fable for the role of teachers and educational technology. The subject of the fable is a new set of educational techniques called CBT (Cereal Box Technique, or Technology). The story discuses the introduction, implementation, attitudes toward, development of, and teacher uses of CBT under the following headings: Introduction of a new idea; Expanding horizons; Another interesting development; The paradigm takes off; An emerging infrastructure; Increasing sophistication brings increasing complications; Equity; Ambiguous results and difficulty of replication; Outlook for the future; and the moral of the story. (AEF)

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Teachers and a New Educational Technology

A Fable of sorts (without talking animals)

by Kenneth W. Umbach, Ph.D.

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A new set of educational techniques has developed a broad and devoted following. This new paradigm -- this new technology -- is called "CBT."

The new paradigm's origins are not traceable to any individual. A few examples show how it began simply and expanded in new and more complex ways.

Introduction of a new idea

Looking for a new activity for her fourth grade class to explore concepts of length and volume, Rondella Smith noticed an assortment of empty cereal boxes awaiting recycling. Ms. Smith retrieved the boxes, emptied them of the last remaining traces of Craklin' Crunchies, Major Sugar Bombs, and Whole Wheat Peachy-Flakes, and carted them along to school.

In class, Ms. Smith's students enjoyed an assignment to measure the length, width, and height of various boxes and to calculate the volume of each. The students compared and charted the dimensions and the resulting volumes and noted the way in which a change in one dimension led to a corresponding change in volume. Through colored charts and simple captions, the students developed a presentation outlining their findings.

For extra credit, several students compared their results in both traditional inch and cubic inch measures and modern metric measures. They discovered that the ratios were the same under either system, an important discovery!

Expanding horizons

In a nearby classroom, Herb Johnson sought a fresh approach to teaching about stagecraft. His fifth grade students were studying the theater. Mr. Johnson wished to help the students to envision how action might be placed within a scene of limited dimension -- a stage.

Noticing the cereal boxes during a brief visit to Ms Smith's classroom to borrow an encyclopedia volume, Mr. Johnson had an idea. His idea was to cut open some cereal boxes to use as miniature stage backdrops. The next day, he brought in his own supply of boxes.

With some cutting and folding, the boxes became suitable layouts, which groups of students then decorated and populated with figurines representing characters in a play. The students enjoyed the exercise. Several went to the library to find information on

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Shakespeare's Globe Theater and other famous theaters to supplement their hands-on investigations. All in all, the unit was quite successful, resulting in interesting presentations neatly arranged for viewing on Parents' Night.

One of the Parents' Night visitors was a science teacher at the nearby junior high school, Mrs. Emily Poston. Mrs. Poston, looking for interesting ways to present a suitable introduction to the concept of strength of materials, also adopted a Cereal Box Technique.

Another interesting development

Mrs. Poston invited her students to bring cereal boxes (CBs) to class. She divided her class into teams, and assigned the teams to experiment with the boxes. They used pieces cut from the boxes, with different arrangements and structural tricks, and with weights and measuring tools. The students discovered that the box materials could be made rather strong through cross-bracing and layering, and that even slight exposure to moisture greatly reduced the strength of the cardboard.

Microscopic examination of the cardboard revealed insights into the composition of the box material and led to rewarding inquiries into how scientists and engineers determine how well materials will hold up under stress. One team built a suspension bridge from cereal box materials and demonstrated its resilience with Match Box models. One student researched the subject and wrote a brief paper comparing the roles of scientists and engineers with respect to the design of bridges. The student came to appreciate the complementary roles of these two major fields.

The paradigm takes off

Before long, CBT -- the Cereal Box Technique (or Technology) -- had worked its way into classes at all grade levels and into units in social studies, economics, English, nutrition, communications, marketing, and chemistry! Several history teachers adapted notions gleaned, not from the box materials, but from their contents and their role, into their courses. Creative teachers used the idea of "What's for Breakfast?" to explore how people in different eras have met their need for food, or were unable to do so because of crop failures or other disasters or difficult circumstances.

Photos of popular sports figures and activities on many of the boxes served as the jumping off point for essay contests, biographical explorations, and other topics ranging from intercultural views of advertising to the logistics of the Olympic Games. Nutrition labels on the boxes provided the basis for a rewarding unit emphasizing the Food Pyramid and how to understand and use the information provided on food packaging.

In each instance, a teacher found a creative way to use CBT as an entry point or alternative way of viewing some element of the curriculum.

Soon, no element of the curriculum was untouched, as those experienced with CBT introduced others to their methods and brainstormed new approaches and applications. The youngest students, too, benefited from CBT-enhanced teaching, as boxes became tanagrams with some aid from the teacher, provided cutouts for illustrating stories, and became decorations for classroom walls. Even reading lessons were enhanced by occasional doses of CBT.

An emerging infrastructure

Those on the leading edge of the phenomenon formed a professional group, Cerealbox-Using Educators (CUE), to exchange techniques and to foster mutual learning. Annual meetings have featured such sessions as "Lab vs. Classroom: Best Options for CBT," and "CBT in the Library: the Cataloging Conundrum."

CBT training emerged as a prerequisite for the teaching credential. Commercial enterprises have developed CBT-enhanced curriculum materials. State education agencies are evaluating and encouraging these new resources and techniques and their applications through such means as the Cerealbox Training Assistance Program (CTAP) and State Cerealbox Option Resources for Enrichment (SCORE).

Libraries soon became important centers for CBT, as library media specialists discovered that CBT could be adapted to new purposes. Sturdy boxes, with some cutting and folding, become pamphlet files. Clippings from boxes enter the vertical files as sources of nutrition information, graphics images (especially sports and cartoon figures, as well as typographic design), and more. All the while, cereal companies ("vendors") are putting new and expanded features into the boxes -- more graphics, more capacity to hold information, and a variety of options at extra cost.

Increasing sophistication brings increasing complications

Some users have attempted to "network" the boxes, through string attached with buttons and stretched until taut. In this fashion, a CB user can speak into one connected box and the vibrating string carries the sound to another connected box. Soon more complex communications techniques emerged, selectively routing communications. This aspect of the technology, however, places overwhelming demands on technical resources, as the connections form a complex web, challenging the capacity of teachers and librarians to cope. The costly services of Certified Netbox Engineers (CNEs) devour budgets and stress the planning and funding capacities of schools and districts struggling to make CBT networks function reliably and productively.

Many teachers prefer to rely on standalone CBs (Cereal Boxes) -- and of course some have no other option. Some favor CBs from Kellogg's, some those from Post, and some prefer other brands. The differences are sometimes the subject of acrimonious debates and fierce loyalties, but each faction has found productive uses. Most teachers can accomplish precisely the same ends with any CBT "platform."

Many teachers complain that vendors are only *"selling boxes,"* with no concern for content and no commitment to the schools and teachers who use them. Vendors, on the other hand, say they are doing their part, and that it is their primary role to provide the merchandise first and foremost.

Equity issues

Equal access to CBT is an issue of wide concern and deep discussion. Some communities, beset by poverty, have few CB resources, as many students receive subsidized school breakfasts, and parents, economizing where they can, choose less expensive brands of cereal packaged in plastic bags -- nutritious, but failing to provide CBs for home use. In some cases, donated CBs sit unused in hallways and storage rooms, for lack of training, coordination, and technical support. In others, leaky roofs have resulted in damage to CBs, or have taken precedence over the tasks required to institute an effective CBT program.

Needless to emphasize, CBs are rare in the non-industrialized and emerging nations. Those fortunate enough to have breakfast at all use bulk grains packaged in large burlap bags, or locally grown produce. Those nations also have undeveloped educational systems and would be unable to make effective use of CBs even if CBs were suddenly thrust upon them.

Ambiguous results and difficulty of replication

Much controversy swirls around the entry of CBT into the schools, as success in some classrooms and schools has not been consistently replicated in others. Test results have not shown consistent, demonstrable impacts from CBT. Critics exclaim that CBT is an unproven approach, latest in a long line of trendy and overhyped technologies and techniques, from educational radio to open classrooms, thrust upon the schools. Some observers warn that a backlash is brewing, in which the whole enterprise will be cast aside, an expensive investment in training and infrastructure given up as misdirected.

Outlook for the future

CBT in some form is here to stay, as so many teachers have proven the technique to be of value in their own classrooms and as CBs and their varied applications are becoming ubiquitous and better understood in the general society. But to make the most of CBT, to use it in all of its broad, complex, and interesting potential, will take time, training, support, and a long view. In all of this, teachers are central. Perhaps the greatest hurdle to overcome is the inclination of some to *"teach cereal boxes"* rather than to "teach *using* cereal boxes." Therein may lie the most important challenge of professional development.

The moral of the story

In time, a simple finding has emerged from the broad, deep, and complex experience with CBT. That lesson, confirming long experience with many preceding technologies and methods is simply this:

"It's not the technology that teaches. It's the teachers."

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